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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,046	06/27/2003	Sung Su Jung	8733.845.00-US	6580
30827	7590	10/01/2004	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP			CALEY, MICHAEL H	
1900 K STREET, NW			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20006			2871	

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/607,046

Applicant(s)

JUNG ET AL.

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-58 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06272003
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada et al. (U.S. Patent No. 5,276,541 "Terada") in view of Sato et al. (U.S. Patent No. 6,549,259 "Sato").

Regarding claim 1, Terada discloses a method of forming a seal pattern for a liquid crystal display device, comprising:

preparing a base substrate (Figure 2 element 11) including a liquid crystal display panel;

arranging a mask over the liquid crystal display panel (Figure 3 element 26) wherein an opening is provided in the mask (Column 4 lines 50-55); and

forming a seal pattern on the one of the plurality of liquid crystal display panels in correspondence with the opening within the mask (Figure 4 element 12).

Terada fails to disclose the base substrate as including a plurality of liquid crystal display panels and the steps of arranging the mask over another liquid crystal display panel and forming a seal pattern on the other liquid crystal display panel in correspondence with the opening. Sato, however, teaches placing a plurality of liquid crystal display panels on a large substrate as

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advantageous in a multi-panel manufacturing method (Column 3 lines 47-60). Additionally, Sato teaches such a multi-panel manufacturing method as compatible with a screen printing method of forming the sealing material as proposed (Column 12 lines 34-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method disclosed by Terada to include a base substrate having a plurality of liquid crystal display panels and to use the mask to form the seal material on multiple display panels. Terada discloses a method of printing a seal material onto a single liquid crystal display panel on a base substrate. As taught by Sato, it is also well known in the art to form multiple display panels on a single substrate to expedite mass production of such displays (Column 3 lines 47-52). One would have been motivated to manufacture a plurality of display panels on a single base substrate as proposed to reduce manufacturing costs and increase production using methods well known in the art as taught by Sato.

Regarding claim 3, Terada discloses the base substrate as a TFT array substrate (Column 4 lines 37-49).

Regarding claim 4, Terada fails to disclose the base substrate as the color filter substrate. Sato, however, teaches the base substrate as the color filter substrate (Column 12 lines 33-44).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the color filter substrate as the base substrate. It is conventional in the art to form the seal through a printing method on either or both of the TFT substrate and the color filter substrate as is indicated by Sato. One would have been motivated to form the color filter

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substrate as the base substrate as an engineering expediency according to a particular manufacturing process to benefit from the expected results of such a method.

Regarding claim 5, Terada discloses disposing sealant material over a predetermined portion of the mask and rolling the disposed sealant material over the mask and into the opening (Figure 3; Column 4 lines 50-61).

Claims 2 and 6-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Terada in view of Sato and in further view of Zhang (U.S. Patent Application Publication 2003/0231277).

Regarding claim 2, Terada as modified by Sato fails to disclose the plurality of liquid crystal cells as of the same size. Zhang, however, teaches an embodiment of a liquid crystal display panel manufacturing process in which multiple panels of the same size are manufactured on a single base substrate (Figure 23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed multiple panels of the same size on a single substrate. Zhang teaches numerous layouts for multiple panels on a single substrate for manufacturing different types of displays. As taught by Zhang, one would have been motivated to place multiple panels of the same size on a single substrate as an engineering expediency to manufacture multiple panels of the same type, such as for a sensor (Page 10 [0137]).

Regarding claims 6-10, Terrada as modified by Sato fails to disclose forming four alignment marks on the base substrate at corners of the plurality of liquid crystal display panels. Zhang, however, teaches forming alignment marks at corners of the liquid crystal display panels as a means of providing alignment control for the masks placed over the liquid crystal panels (Figure 7 element 15; Page 6 [0078], [0085]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have placed alignment marks at the corners of the plurality of display panels as proposed. One would have been motivated to place such alignment marks at the corners of the substrates as a means of providing alignment control for the masks used for constructing the panels. Such alignment marks would have been beneficial to maintain highly precise alignment of the components and layers constructed on the base substrate during assembly, thus minimizing the possibility of faults in the final product.

Regarding claims 11-14, Terada as modified by Sato fails to disclose the shape of the alignment marks. Zhang teaches alignment marks as provided in a “+ -shape”. Additionally, the examiner takes Official notice that it is conventional in the art to form alignment marks in various other shapes including a X-shape, a rectangular shape, and a circular shape.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the alignment marks in an alternative shape as proposed. One would have been motivated to shape the alignment marks accordingly as an engineering expediency according to a particular preference, such as in a design for a particular alignment mark detection mechanism.

Regarding claims 15, 16, 19-42, and 47-58, Terada as modified by Sato fails to disclose a first panel as having a size greater than a second panel and the method of arranging a second mask over the second liquid crystal display panel. Zhang, however, teaches an embodiment of a liquid crystal display panel manufacturing process in which multiple panels of different sizes are manufactured on a single base substrate (Figures 12 and 15A, for example).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed multiple panels of different sizes on a single substrate. Zhang teaches numerous layouts for multiple panels on a single substrate for manufacturing different types of displays. As taught by Zhang, one would have been motivated to place multiple panels of different sizes on a single substrate as an engineering expediency to manufacture multiple panels of different types, as needed, such as for monitors and portable telephones (Page 8 [0101]). Such a manufacturing method is beneficial to maximize the use of the area of a glass substrate to minimize waste, for example.

Furthermore it would have been inherent, or otherwise obvious to one of ordinary skill in the art to form a second seal pattern on the second liquid crystal display panel in correspondence with the openings in a second mask. Using the conventional seal printing method disclosed by Terada, it would have been impossible to form seal patterns for a panels of different sizes using the same mask having a specific seal shape for one size of display. Therefore, it would have been straightforward to one of ordinary skill in the art to form the seal of the second panel having a smaller size using a second mask.

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Regarding claims 17, 18, and 43-46, Terada as modified by Sato fails to disclose a liquid crystal display panel as having a plurality of second liquid crystal display panels, or a single liquid crystal display panel. Zhang, however, teaches individual panel portions as each having either a single panel or multiple second panels (Figure 12 elements 12a-single and 12e-multiple).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed multiple panels of different sizes on a single substrate. Zhang teaches numerous layouts for multiple panels on a single substrate for manufacturing different types of displays. As taught by Zhang, one would have been motivated to place multiple panels of different sizes on a single substrate as an engineering expediency to manufacture multiple panels of different types, as needed, such as for monitors and portable telephones (Page 8 [0101]). Such a manufacturing method is beneficial to maximize the use of the area of a glass substrate to minimize waste, for example.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286.

The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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Art Unit 2871



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PRIMARY EXAMINER